Poster Presentation Abstracts
CSHP-BC Branch Annual General Meeting 2015

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REVIEW OF PNEUMOCOCCAL VACCINATION IN THE PEDIATRIC CYSTIC FIBROSIS POPULATION

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Rationale:

Streptococcus pneumoniae is a known cause of pneumonia, septicemia, and meningitis, with infants <2 years being at high risk. Cystic Fibrosis (CF) patients have been found to have an impaired response to pneumococcal vaccination, placing them at greater risk for infection. In British Columbia, pneumococcal conjugate vaccine (PCV13) is part of the routine immunization schedule for infants and toddlers at age 2, 4 and 12 months. As infants with CF are considered an at-risk group, an additional PCV13 at 6 months, and a pneumococcal polysaccharide vaccine (PPV23) after 2 years is recommended. Previous studies have highlighted high rates of incomplete pneumococcal vaccination series in the CF group. We wanted to evaluate if the CF patients between 6 – 59 months attending our clinic had received all recommended doses of pneumococcal vaccinations.

Objectives:

To evaluate the pneumococcal immunization status of CF patients aged 6 - 59 months. To educate families and their community health providers about additional pneumococcal doses available to CF patients.

Methods:

Forty-six infants between 6 - 59 months were identified by the CF clinic. Immunization records were sought from multiple sources. Patients were excluded from analysis if they had declined all immunizations or if no record was received.

Results:

Immunization records were received for 35 patients. Of the 35 patients reviewed, 18(50%) had missed their 6 month PCV13 dose. In addition, 13/15(86%) toddlers had not received a PPV23 dose. All but 2(6%) families have agreed to proceed with completing the pneumococcal vaccine series.

Conclusion:

Completion of the pneumococcal vaccination series in our infant and toddler group was low. Improved education for both CF families and their primary care providers is necessary to ensure all recommended pneumococcal doses are received.

This poster was presented at the 29th Annual North American Cystic Fibrosis Conference, October 8-10, 2015.

AN EVALUATION OF THE *CLOSTRIDIUM DIFFICILE* INFECTION QUALITY ASSURANCE INITIATIVE AT THE VANCOUVER GENERAL HOSPITAL, LIONS GATE HOSPITAL, AND RICHMOND HOSPITAL

Tim T.Y. Lau, PharmD; Nilu Partovi, PharmD; Rob McCollom, BSc(Pharm); Jane de Lemos, PharmD; Gabriel Loh, PharmD; Isla Drummond, BSc(Pharm); Jennifer Grant, MD CM; Salomeh Shajari, BSc; Felicia Laing, MSc; Linda Dempster, MA; Elizabeth Bryce, MD

Rationale:

Clostridium difficile-associated diarrhea is a significant cause of health-care associated morbidity and mortality. A *Clostridium difficile* Infection (CDI) Management Policy was developed at Vancouver Coastal Health (VCH) to provide guidance to clinicians on optimal CDI treatment. However, there was no process to ensure all prescribers adhered to this policy. As a collaborative effort, Pharmacy and Infection Control developed a regional CDI Quality Assurance Initiative to ensure all CDI patients were treated according to the evidence-based CDI Management Policy. All evaluable CDI patients would be followed by Clinical Pharmacists at Vancouver General Hospital (VGH), Lions Gate Hospital (LGH), and Richmond Hospital (RH) and assessed for treatment appropriateness based on the guidelines, and recommendations would be made to prescribers, where appropriate, to optimize therapy.

Objective:

To evaluate the impact of the CDI Quality Assurance Initiative at VCH.

Methods:

We conducted a one-year evaluation (April 2013 to March 2014) to determine proportion of evaluable CDI positive patients reviewed by a Clinical Pharmacist, number and types of pharmacist interventions, and physician compliance rates to the CDI Policy at VGH, LGH, and RH.

Results:

Four-hundred-eighty-three CDI positive patients were reviewed. Proportion of CDI patients assessed by Pharmacists increased from 80% (April 2012 to March 2013) to almost 99% (April 2013 to March 2014) at all sites (99% VGH, 100% LGH, and 100% RH). At VGH, the most common deviation from complete adherence was associated with incorrect duration of empiric therapy. Complete adherence to CDI Policy by physicians was 78% at the three sites combined (80% VGH, 74% LGH, and 70% RH).

Conclusions:

A joint Clinical Pharmacy and Infection Control CDI Quality Assurance Initiative is an effective strategy to ensure CDI positive patients are assessed and receive appropriate treatment. Physician education is required to ensure optimal duration of treatment is prescribed at onset of CDI.

This poster was presented at the Quality Forum 2015, Vancouver, BC, February 18-20, 2015.

THE ANTIMICROBIAL STEWARDSHIP PROGRAMME (ASPIRES) AT VANCOUVER COASTAL HEALTH: A COLLABORATIVE APPROACH IN OPTIMIZING ANTI-INFECTIVE USE

Tim T.Y. Lau, PharmD; Jennifer Grant, MD CM; Diane Roscoe, MD; Felicia Laing, MSc; Salomeh Shajari, BSc; Linda Dempster, MA; Nilu Partovi, PharmD

Rationale and Description:

Since January 2013, the Antimicrobial Stewardship Programme (ASPIRES) at Vancouver Coastal Health (VCH) has collaborated with physicians, pharmacists, and nurses to promote appropriate anti-infective use through multi-faceted initiatives. We present an overview of our approach in developing stewardship strategies.

Steps Taken:

General approach in developing ASPIRES' initiatives:

1. Identifying priority areas for optimizing anti-infective use
    a. Discussions with stakeholders to prioritize areas of concern;
    b. Identification of common infections at VCH;
    c. Extraction of anti-infective data to identify usage patterns.
2. Collaborating with stakeholders to address areas for improvement
3. Developing comprehensive approaches to optimize prescribing
4. Implementing stewardship initiatives through education and hospital approval
5. Evaluating interventions for quality assurance.

End Result:

ASPIRES implemented a series of complementary programmes to enhance anti-infective use across VCH.

1. ***Clinical practice guidelines and standardized pre-printed orders***
   In collaboration with physicians, nurses and pharmacists, community-acquired pneumonia, urinary tract infection, ventilator-associated pneumonia, and surgical prophylaxis guidelines were developed and implemented across Lions Gate (LGH), Richmond (RH), and Vancouver General (VGH) Hospitals.
2. ***Audit and feedback of anti-infectives prescriptions***
   Audit and feedback is an evidence-based practice of reviewing patients' anti-infective therapies with prescribers to optimize treatment. It started at VGH in March 2013 and expanded to RH and LGH.
3. ***Clinical tools***
   Anti-infective Comparison and Common Infections Treatment cards were developed to standardize and promote appropriate prescribing at LGH, RH, and VGH.
4. ***Education***
   ASPIRES and Professional Practice collaborated in educational sessions to nurses through the CAUTI initiative.

5. ***Quality improvement projects***
   In collaboration with Pharmacy and Infection Control, 483 *Clostridium difficile* positive patients had treatments optimized at LGH, RH, and VGH.

Importance to Current Practice:

ASPIRES has established multiple initiatives across VCH to improve patient care through optimization of anti-infective use. Collaboration with stakeholders has been essential for implementation of successful interventions.

This poster was presented at the Quality Forum 2015, Vancouver, BC, February 18-20, 2015.

DEVELOPMENT OF ANTI-INFECTIVE COMPARISON AND COMMON INFECTIONS TREATMENT CARDS AT THE VANCOUVER GENERAL HOSPITAL

Tim T.Y. Lau, PharmD, Jennifer Grant, MD CM, Diane Roscoe, MD, Felicia Laing, MSc Salomeh Shajari, BSc, Linda Dempster, MA, Nilu Partovi, PharmD

Rationale:

Education on appropriate use of antimicrobials is essential to ensure that patients achieve best clinical outcomes, while reducing the development of adverse drug effects and antimicrobial resistance.

Description:

Clinical tools that summarize the differences between antimicrobials and the best practice treatments of common infections are beneficial in standardizing and promoting appropriate antimicrobial prescribing. These resources were developed as pocket-sized cards for ease of access at the point of care.

Steps Taken:

The Antimicrobial Stewardship Programme (ASPIRES), Medical Microbiology, and Pharmacy at the Vancouver General Hospital (VGH) compiled the Anti-infective Comparison Card, which provides a summary of the dosing regimens for anti-infectives on the drug formulary and an antibiogram of common pathogens. The Common Infections Treatment Card includes treatment guidelines for infectious diseases syndromes that are commonly treated in the hospital setting. Physician stakeholder feedback from specialty groups was obtained during the development process.

Result and Evaluation:

An Anti-infective Comparison Card and a Common Infections Treatment Card were developed as clinical tools for prescribers. The Anti-infective Comparison Card provides general principles on appropriate anti-infective use. The Common Infections Treatment Card summarizes the clinical practice guidelines for the treatment of *Clostridium difficile* infection, community-acquired pneumonia, hospital-associated pneumonia, aspiration pneumonia, intra-abdominal infections, meningitis, skin and soft tissue infections, and urinary tract infections. Approximately 300 copies of the Anti-infective Comparison Card and 300 copies of the Common Infections Treatment Card have been distributed to staff physicians, medical residents/students, pharmacists, and pharmacy residents/students.

Importance to Current Practice:

Clinical tools have been developed at VGH to guide prescribers by promoting appropriate antimicrobial use for treatment of common infections and standardizing practices. The clinical cards have been individualized at other Vancouver Coastal Health sites, such as Lions Gate Hospital and Richmond Hospital, based on their local needs and antibiotic susceptibility patterns.

(Presented at Quality Forum 2015, Vancouver, BC, February 18-20, 2015)

EFFICACY, SAFETY AND TOLERABILITY OF BASILIXIMAB AS INDUCTION THERAPY TO PREVENT CARDIAC TRANSPLANT REJECTION – A SYSTEMATIC REVIEW

Cindy San, B.Sc. (Pharm.), ACPR; Doson Chua B.Sc. (Pharm.), Pharm. D., BCPS (AQ); Victoria Su B.Sc.(Pharm.), ACPR, PharmD, BCPS

Rationale:
Acute rejection (AR) remains a major cause of morbidity and mortality in the first year following heart transplantation (HT). Induction therapy with antithymocyte globulin (ATG) and rabbit antithymocyte globulin (RATG) are traditionally used in HT to prevent AR. However, they are poorly tolerated and increase risk of infections. Basiliximab, an interleukin-2 inhibitor (Il-2Ra), is also approved in Canada for this purpose. Current HT guidelines do not provide recommendations for the agent of choice for induction therapy.

Objective:
To review the efficacy, safety and tolerability of basiliximab compared to other induction agents available in Canada for HT.

Design and Methods:
MEDLINE, PubMed, Cochrane databases were searched (1946 to April 2015) for full-text English-language publications describing trials in adults. Search terms were HT, basiliximab, IL-2Ra, ATG, RATG, rejection, mortality, infection, tolerability, and safety. All 3 authors independently evaluated citations using title and abstract. If questions remained regarding inclusion eligibility, the full-text article was reviewed. RCTs and cohort studies that evaluated efficacy or safety endpoints (as defined by each trial) of basiliximab in HT induction were included. Meta-analyses, case reports and studies using induction agents that are not available in Canada were excluded.

Results:
Five trials were included in this review. The evidence for efficacy of basiliximab compared to ATG/RATG for rejection and survival outcomes is conflicting. The majority of studies demonstrate a trend that basiliximab has similarly or better tolerated and has less adverse effects, such as infections, compared to ATG/RATG

Conclusion:
Evidence for the use of basiliximab in HT is indeterminate. Given the equivocal evidence of efficacy for basiliximab and ATG/RATG, either drug could be considered as first-line agents in HT. Placebo-controlled studies with appropriate statistical power are warranted to evaluate meaningful clinical outcomes, such as long-term survival and/or rejection to guide practice.

This project was presented at the Canadian Society of Hospital Pharmacists Summer Educational Sessions. August 17 2015.

DEVELOPMENT AND IMPLEMENTATION OF A REGIONALIZED ORIENTATION PROCEDURE FOR NEWLY HIRED PHARMACISTS ACROSS LOWER MAINLAND PHARMACY SERVICES

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Rationale:
Many pharmacists are hired throughout the year across the sites in Lower Mainland Pharmacy Services (LMPS). However, the orientation activities for newly hired pharmacists vary across the sites, and there may be multiple orientations occurring at the same time. Some of these activities are common to all sites such as regional policies and procedures, intranet resources, clinical metrics, etc. Therefore, standardization across the sites may increase the efficiency of the orientation process.

Objectives:
The primary objective of the study is to determine which orientation activities in LMPS can be standardized, and to make recommendations to improve the efficiency in orientating new LMPS pharmacists.

Methods:
Orientation materials across LMPS sites were collected and an environmental scan was conducted to determine which activities were common, and which ones were site specific. Activities that were common across two or more sites were considered to be similar, and among these activities the possibility of standardization was discussed. A survey was also sent out to all site coordinators to determine the approximate duration of orientation procedures. Recommendations based on the findings were made to the Clinical Advisory team for further discussion.

Results:
In the end, activities that had the possibility of being standardized were made into a checklist that may be beneficial for coordinators to include into their respective orientation documents. As well, six recommendations were made on the following topics: a centralized general orientation, online modules, a central administrative assistant, a centralized dispensary orientation, a clinical activities checklist and limiting the duration of orientation.

Conclusion: The standardization of orientation activities across LMPS aims to make the orientation process more efficient, with the possibility of providing all newly hired pharmacists an equal orientation process and exposure to necessary activities. It may also provide assistance to sites that lack appropriate resources and trainers.

5-ALPHA REDUCTASE INHIBITORS FOR TREATMENT OF BENIGN PROSTATIC HYPERPLASIA: A SYSTEMATIC REVIEW AND META-ANALYSIS

Jennifer Jun, BSc, BSc (Pharm) candidate; Angus Kinkade, BSc (Pharm), ACPR, PharmD, MSc, BCPS; Anthony Tung, BSc (Pharm), ACPR, MBA, BCPS

Rationale:
Finasteride and dutasteride are competitive 5-alpha reductase (5AR) inhibitors, commonly used for the treatment of symptomatic benign prostatic hyperplasia (BPH). 5ARs are the enzymes that convert testosterone to dihydrotestosterone (DHT), which is important for BPH progression. Finasteride is a selective inhibitor of the Type 2 isoenzyme whereas dutasteride inhibits both types. This difference in mechanism has resulted in a significantly greater or more consistent reduction in DHT with dutasteride than with finasteride; whether this leads to any clinical significance is not well-known.

Objective:
This study is intended to evaluate the literature regarding the relative efficacy of finasteride and dutasteride on clinically important outcomes. A systematic review could help determine which agent is the safest and most effective for treatment of BPH and should be on the formulary in acute hospitals. Moreover, if found to be clinically comparable, the more economical of the two could be provided via an automatic therapeutic interchange in hospitals, which could reduce health care cost.

Methods:
Randomized control trials, quasi-randomized trials, and systematic reviews comparing finasteride to dutasteride either as monotherapy or in combination with alpha-blockers in men with BPH were included. The outcomes studied were need for prostate-related surgery, acute urinary retention episodes, withdrawal due to adverse events, total serious adverse events, mortality, and sexual dysfunction.

Results:
There were no differences in need for prostate-related surgery (OR 2.01, 95% CI: 0.18, 22.24), acute urinary retention episodes (OR 1.47, 95% CI: 0.68, 3.19), number of withdrawals due to adverse events (OR 1.10, 95% CI: 0.68, 1.75) or serious adverse events (1.31, 95% CI: 0.87, 1.97). The odds ratios for sexual dysfunction and total adverse events were 0.83 (95% CI: 0.64, 1.08) and 0.94 (95% CI: 0.78, 1.14) respectively.

Conclusion:
There is insufficient evidence to suggest clinically important differences between finasteride and dutasteride at this time.

APPROPRIATENESS OF ANTIMICROBIAL USE FOR THE TREATMENT OF PNEUMONIA AT BURNABY HOSPITAL

Allan Yang, UBC BSc Pharmacy 2016 Candidate; Ivy Chow, PharmD; Vincent Mabasa, PharmD

Rationale:
As one of the top 10 leading causes of death for Canadians, there is a substantial amount of antimicrobial use for the treatment of pneumonia. It is unclear the current status on the appropriateness of antimicrobial use for pneumonia treatment at Burnaby Hospital, therefore this needs to be assessed.

Objectives:
To assess the appropriateness of empiric antimicrobial therapy for treatment of pneumonia and to identify current trends in IV to PO step-down rates, de-escalation rates, duration of therapy, and adverse events.

Methods:
Prospective, single centre, observational study of a convenience sample of inpatients 19 years of age or older diagnosed with pneumonia on a medical unit. Patients were prospectively followed from June 23 to 30, 2015 and August 10 to 14, 2015. The data was then analyzed using descriptive statistics.

Results:
Twenty-six patients were included in our study, 13 (50.0%) had community acquired pneumonia (CAP), 6 (23.1%) had aspiration pneumonia (AP), 5 (19.2%) had healthcare associated pneumonia (HCAP), and 2 (7.7%) had hospital acquired pneumonia (HAP). Overall 88.5% of cases were started on appropriate empiric antibiotics. For de-escalation, 2 (40.0%) CAP, 3 (100%) HCAP, and 1 (100%) AP cases could have de-escalated earlier. For step-down, 6 (75.0%) CAP, 2 (100%) HCAP, 1 (100%) AP could have stepped down earlier. The median days of therapy for CAP, HAP, HCAP, and AP were 10.0, 10.0, 13.0, and 10.5, respectively. Diarrhea was the main adverse effect reported but none was due to *Clostridium difficile.*

Conclusions & Implications for Practice:
High rates of appropriate empiric antimicrobial for the treatment of pneumonias at Burnaby Hospital. However, lower rates of step-down and de-escalation and higher median duration of therapy suggests room for improvement, perhaps in the form of reassessments throughout therapy for potential de-escalation and/or step down or discontinuation.

ASSESSMENT OF URINARY TRACT INFECTION TREATMENT AT BURNABY HOSPITAL

Rachael Lee, UBC BSc Pharmacy 2017 Candidate; Ivy Chow, PharmD; Vincent Mabasa, PharmD

RATIONALE:

Antimicrobials are commonly prescribed in urinary tract infections (UTI); however, asymptomatic bacteriuria (ASB) does not require treatment unless the patient is pregnant or undergoing urologic surgeries. Currently ASB rates and the appropriate treatment of UTIs at Burnaby Hospital are unknown.

OBJECTIVES:

The objectives of this study are to assess the incidence of asymptomatic bacteria treated with antimicrobials, to evaluate the appropriateness of antimicrobial therapy for UTI treatment, and to identify the rates of IV to PO stepdown, rates of de-escalation and the incidence of adverse drug reactions.

METHODS:

This is a prospective, single centre, observational study conducted over 14 days with 3 additional weeks of follow-up of all inpatients with a positive urine culture. Urine culture and urinalysis findings were documented and individual chart review was conducted by one investigator. Each case was classified into 5 UTI categories (ASB, catheter-associated UTI, cystitis, pyelonephritis, urosepsis) and appropriateness of treatment decisions, IV-PO step down, de-escalation, duration of therapy and adverse events were analyzed using descriptive statistics.

RESULTS:

A total of 45 adult inpatients at Burnaby Hospital were included in this study. ASB was diagnosed in 28 patients. 75% (21) of patients with ASB received antibiotics; antibiotics were indicated in 25% (7) of them due to a concurrent infection. 40% (2) of cystitis patients, 100% (3) of urosepsis patients and 100% (1) of catheter-associated UTI patients received antibiotic therapy that is appropriate in terms of indication and treatment duration. Appropriate IV-PO stepdown and de-escalation occurred in 83.3% (5) and 66.7% (4) of patients, respectively. 25% (2) of reported adverse drug reactions, which includes one case of *Clostridium difficile* infection, was related to inappropriate use of antibiotics.

CONCLUSIONS:

Inappropriate use of antibiotics for ASB presents as a major area for antimicrobial stewardship. Improved education and intercommunication between healthcare professionals regarding the most recent treatment guidelines may be beneficial.

CURRENT STATE OF THE LIPID HYPOTHESIS: A SYSTEMATIC REVIEW TO ASSESS THE EFFECT OF LOW DENSITY LIPOPROTEIN CHOLESTEROL ON CARDIOVASCULAR HEALTH

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Rationale:
Current view on cardiovascular disease prevention is still heavily reliant on the lipid hypothesis, which identifies low density lipoprotein cholesterol (LDL-C) as a major causative factor of cardiovascular disease. Despite ongoing focus and development LDL-C lowering interventions, evidence exist to demonstrate LDL-C lowering does not produce cardiovascular benefits. The 2013 ACC/AHA updated guidelines also recommended to forgo LDL-C targets for the risk reduction of cardiovascular disease, recognizing the current ambiguity of evidence regarding the role of LDL-C reduction.

Objectives:
The goal of this review is to assess the validity of the lipid hypothesis, namely the role of LDL-C as a causative agent of cardiovascular disease using existing evidence from clinical outcome studies.

Designs & Methods:
A literature search was performed on the PubMed database (1946-Present) gathering all existing evidence involving LDL-C lowering and its clinical outcome. Studies were then categorized as supportive or undermining of the lipid hypothesis if the studies demonstrated concordant or discordant relationship between LDL-C alteration and cardiovascular disease, respectively. The quality of evidence was determined based on the study's attempt to isolate and analyzed the sole effect of LDL-C on cardiovascular health, without the effect of confounding factors. The studies were then classified as high or low quality evidence supportive or undermining of the lipid hypothesis.

Results:
93 studies were selected. 64 studies contained evidence supportive of the lipid hypothesis, and 2 studies were identified to contain high quality evidence. 31 studies contained evidence undermining of the lipid hypothesis, and 7 studies were identified to contain high quality evidence.

Conclusion:
More high quality evidence exist that is undermining of the lipid hypothesis than evidence supportive of the lipid hypothesis.

A META-ANALYSIS OF STROKE RISK FOLLOWING HERPES ZOSTER INFECTION

Jeremy Antepyan; Fawziah Marra, BSc (Pharm), PharmD; Kathryn Richardson, PhD

Background: Incidence of herpes zoster is increasing and poses a significant health concern to an aging population. Several studies have now been published suggesting an increased risk of stroke following zoster infection, but the results are conflicting.

Objective: We conducted a systematic review and meta-analysis to determine if stroke risk is increased following zoster.

Design and Methods: A search of MEDLINE, EMBASE, Google scholar, Web of Science (WoS), CAB Direct (CABD), Cumulative Index to Nursing and Allied Health Literature (CINAHL), and Evidence Based Medicine Reviews (EBM) was conducted for articles reporting on herpes zoster infection and stroke risk from January 1966 to present. Search terms related to herpes zoster, stroke and transient ischemic attacks (TIA) were used. We included randomized, controlled trials (RCTs), observational studies (i.e. cohort and self-controlled case series) of adults with herpes zoster infection examining stroke and transient ischemic attacks (TIA) risk. Two authors independently extracted relevant data using a standardized abstraction form. We used the Mantel-Haenszel method with a pooled risk ratios (RR) and 95% confidence intervals (CIs), using a random effect model.

Results: Of the 4290 articles identified through the database search, 6 studies were included (4 retrospective cohort; 2 self-controlled case studies). The total number of patients in these studies ranged from about 2600 to 4.6 million. The mean age ranged from 46 to 60 to years of age. The risk of stroke following an episode of herpes zoster was the highest in the first 2 weeks following the acute zoster episode and diminished slowly thereafter. The risk at the 1, 3, and 12 month, and 5 years follow-up were RR 1.50 (95% CI: 1.30,1.72), 1.38 (95% CI: 1.20,1.60), 1.23 (95% CI: 1.17,1.29), and 1.06 (95% CI: 0.99,1.13), respectively.

Conclusion: Shingles is an established risk factor for increasing the risk of stroke. The vaccination should be strongly encouraged in patients with an already high risk of cardiovascular disease.

A Survey of the Perceptions of Hospital Pharmacists on Clinical Research

Robin Lee, BSc; Karen Dahri, BSc, BSc Pharm, PharmD, ACPR, BCPS; Tim Lau, PharmD, ACPR, FCSHP; Anthony Tung, BScPharm, ACPR, MBA; Angus Kinkade, PharmD, ACPR, MSc; Stephen Shalansky, PharmD, ACPR, FCSHP

Rationale

There are currently few studies examining the clinical research levels of Canadian hospital pharmacists despite the overwhelming interest to have them increase their participation in research.

Objectives

The primary objective of this study was to characterize the current levels of clinical pharmacy research by hospital pharmacists that are employed by the Lower Mainland Pharmacy Services (LMPS). The secondary objective was to identify barriers to conducting research.

Design and Methods

A cross-sectional survey was conducted and descriptive statistics were used to analyze the results. Comparisons between groups of survey participants were made to examine differences in measured outcomes.

Results

An invitation to participate was sent out via e-mail to eligible LMPS pharmacists. Eighty-five pharmacists out of the potential 534 LMPS pharmacist staff responded, giving a response rate of 16%. Overall, 22.5% (16/71) of respondents have not participated in research. Eighty-seven percent (62/71) of pharmacists expressed interest in conducting research in the future. Chart reviews (78.3%, 36/46) and surveys (41.3%, 19/46) were the most common study designs conducted in prior research. Participants self-identified their research-related strengths as literature evaluation (45%, 27/59) and hypothesis generation (44%, 26/59). Eighty-one percent (48/59) of pharmacists self-identified statistical analysis as a weakness. The majority of respondents believed that personal satisfaction (82%, 49/60) and improving knowledge (78%, 47/60) were the driving factors for conducting research. The most cited barrier to conducting research was time (92%, 55/60). Opportunities to join existing teams (73%. 44/60) and mentorship programs (70%, 42/60) were identified as the most popular tools for conducting future research.

Conclusions

The majority of pharmacists responding to this survey have participated in clinical pharmacy research, but a lack of dedicated time appears to be a major hurdle. A targeted program increasing exposure to existing research teams and a mentorship program is recommended for promoting future research.

CHANGE IN CARBAPENEM USAGE AT A COMMUNITY HOSPITAL

Vivian Leung, BSc(Pharm), ACPR, PharmD, PhD; Nina Bredenkamp, BSc(Pharm); Adil Virani, BSc(Pharm), PharmD; Ann Davidson, BSc(Pharm), ACPR; Janice Dunse, BSc(Pharm), ACPR

RATIONALE

Carbapenems are reserved for the treatment of infections for which multidrug-resistant organisms are suspected. An antimicrobial stewardship initiative was developed to raise awareness, and support appropriate prescribing of carbapenems and other formulary restricted antibiotics. An observational study, including a detailed, patient-level analysis of this initiative, was conducted at a community hospital.

OBJECTIVES

To evaluate inpatient usage of carbapenems with respect to other parenteral antibiotics before and after the initiative

DESIGN AND METHODS

A pre-printed order (PPO) set was developed and introduced to hospital pharmacy staff and physicians through stakeholder consultations, presentations, and written communique in the months leading up to its implementation. Medication records were reviewed to estimate inpatient usage of carbapenems as a proportion of all parenteral antibiotics before (February-June, 2014) and after (February-June, 2015) PPO implementation. Piperacillin-tazobactam, which is also a broad-spectrum but unrestricted formulary option, was also reviewed. Some patients were noted to have multiple carbapenem order entries for the same treatment course. Therefore, a detailed analysis was performed to determine the number of treatment courses. Further, hospital admissions before and after the initiative were enumerated.

RESULTS

Carbapenems comprised 14.6% (124 of 847) and 5.1% (47 of 923) of all parenteral antibiotic records in the 2014 and 2015 study periods, respectively ($p<0.001$). In the detailed analysis, there were 103 and 45 carbapenem treatment courses, respectively. Piperacillin-tazobactam usage was 17.5% and 19.3%, respectively (p=ns). Combined usage of carbapenems and piperacillin-tazobactam was 32.1% and 24.4%, respectively ($p<0.001$). The number of hospital admissions was similar between the two study periods.

CONCLUSION

We observed a significant reduction in carbapenem usage that was possibly attributable to the introduction of an antimicrobial stewardship initiative at a small community hospital. Additional efforts are needed to sustain carbapenem stewardship at this hospital, and continue to promote judicious use at other sites.

RESTRICTED ANTIMICROBIAL DRUG USE AND PRE-PRINTED ORDER IMPLEMENTATION IN FRASER HEALTH ACUTE CARE HOSPITALS

Anna Judson, BSc(Pharm) Candidate, 2016; Jeff Wong, BSc(MBIM), BSc(Pharm) Candidate, 2016; Tanveer Brar, BSc(Biology), BSc(Pharm) Candidate, 2016; Vivian Leung, BSc(Pharm), ACPR, PharmD, PhD; Adil Virani, BSc(Pharm), PharmD

RATIONALE

The Restricted Antimicrobial Drug (RAD) initiative is an antimicrobial stewardship strategy to raise awareness about formulary restrictions on carbapenems, linezolid, and daptomycin. The RAD pre-printed order (PPO) set, introduced in January 2015, is a clinical tool intended to support appropriate prescribing, and capture data prospectively and systematically on the medical conditions and pathogens for which RADs are used. This study was a region-wide evaluation of this new initiative.

OBJECTIVES

To evaluate the uptake of the RAD PPO, describe the patterns of RAD prescribing, and document the clinical rationale for using RADs across 11 sites in the Fraser Health Authority (FHA).

DESIGN & METHODS

Copies of all RAD orders were collected at 11 acute care sites across FHA over the month of May, 2015. Restricted antibiotic usage and PPO completion rates were stratified by medical department and acute care site. From among completed PPOs, documented clinical indications, and suspected or known pathogens were analyzed using descriptive statistics.

RESULTS

The overall PPO completion rate was 24.5% (130 of 530 RAD orders), with varying degrees of uptake across different hospitals. Carbapenems were most frequently used to target ESBL-producing organisms, while linezolid and daptomycin were used to treat resistant gram-positive infections involving MRSA or VRE. The most commonly documented conditions for all RAD use were genitourinary infections, respiratory infections, and sepsis. The departments that used RADs most frequently were hospitalists, internal medicine, and emergency medicine.

CONCLUSION

We observed partial implementation of the RAD PPO at most FHA sites. Most RAD regimens initiated with the PPO were consistent with formulary criteria for use. The new initiative may take more time until it becomes routine practice for RAD prescribing. The PPO facilitated documentation of the rationale for RAD use and will support future strategic evaluations and interventions in the health authority.